• COLORADO RIVER •

AQUEDUCT NEWS

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Vol. IV JUNE 10, 1937 No. 11

AQUEDUCT BRIDGE ACROSS THE SANTA ANA RIVER

Crossing the Santa Ana River a few miles west of Riverside, this bridge carries a ten-foot steel siphon of the Upper Feeder of the Distributing System.

• COLORADO RIVER •
AQUEDUCT NEWS
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
306 WEST THIRD ST.
LOS ANGELES, CALIFORNIA

Published twice monthly in the interest of Field and Office Workers on the Colorado River Aqueduct, and for the information of all other citizens of the Metropolitan Water District.

Vol. IV June 10, 1937 No. 11

Many Outside Areas Request Annexation Information

With the upper feeder of the distributing system now more than two-thirds completed between Cajalco reservoir and the western end of the San Rafael tunnels, many areas outside of the Metropolitan Water District are requesting information relative to securing water from the aqueduct.

In 1936 the Board of Directors established a policy that Metropolitan Aqueduct water will not be sold to areas outside of the District. Such areas, therefore, must first be annexed to the Metropolitan Water District before they can be eligible to receive aqueduct water.

On June 1, 1937, approximately 41 miles of the distribution system's upper feeder had been completed. In order to carry out the District's construction schedule, it will be necessary in the immediate future to make decisions as to the final location of other distributing laterals.

The present policy of the District is to build these laterals so that water can be delivered directly to each of its member areas. This policy is planned to be effective only during the present construction period.

Areas that may desire to become a part of the District after the present construction program has been completed, it has been pointed out, may be compelled to bear the entire cost of building water lines to connect with the established Aqueduct system.

During 1936, the Board of Directors received requests for information relative to joining the District from areas totaling approximately 400,000 acres in extent. These areas extended as far north as the Simi Valley in Ventura County, and included the citrus regions east of Glendora, all of Orange County, incorporated cities west of Los Angeles, and coastal areas as far south as Balboa.

(*Continued on Page* 6)

A Parker Dam bulldozer takes a ride across the canyon via the overhead cableway. The line on the cliff at the left is the cable's shadow, and not an earthquake fault.

Directory

BOARD OF DIRECTORS

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Asst. Chief Engineer.....Julian Hinds
General Counsel .....James H. Howard
Asst. General Counsel.....Arthur A. Weber
Asst. Controller.....J. M. Luney
General Supt.....James Munn
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Asst. to Gen. Mgr.....Don J. Kinsey
Secy. to Gen. Mgr.....Elisabeth von Hagen

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Divisions 1 & 2....W. E. Whittier
Divisions 2 & 3.....John Stearns
Division 4.....O. J. Schieber
Divisions 5 & 6.....J. B. Bond
Distribution.....R. B. Diemer
Transmission.....Robert N. Allen

SUPERINTENDENTS OF CONSTRUCTION, PUMPING PLANTS

Intake and Gene.....T. T. Walsh
Iron Mt. .....B. H. Martin
Eagle Mt. and Hayfield .....R. C. Booth

SUPERINTENDENTS

(Main Aqueduct Tunnels)

Coxcomb and East Iron Mt. Tunnels, Winston Bros.; R. V. Johnson, Gen. Supt.

East Eagle Mt. Tunnel and West Eagle Mt. Tunnel, east portion, Broderick & Gordon; John Will, Gen. Supt.

East Coachella Tunnels, J. C. Fischer, General Foreman.

San Jacinto Tunnel, District Force Acct., B. C. Leadbetter, Gen. Supt.; S. J. Shrode, John Austin and C. E. Sides, Tunnel Supts.; Chas. F. Thomas, Jr., Supt.; F. A. Backman, Gen. Foreman.

(Distribution Tunnels)

Monrovia Tunnels Nos. 1, 2 and 3, West Construction Co., H. E. Carleton, Gen. Supt.; Peter Brisbois and Luther Dennis, Tunnel Supts.; E. M. Penn, Concrete Supt.

San Rafael Tunnels Nos. 1 and 2, and Monrovia Tunnel No. 4, L. E. Dixon Co., Bent Bros., Inc., and Johnson, Inc.; S. D. Hackley and W. N. Evans, Supts.

(Canal, Siphon, Conduit)

Schedules Nos. 1, 1A, 1B, 10, 10A, 10B, 11, 11A, 11B, 11C, 13, 13A, and 13B, Aqueduct Construction Co., S. T. Corfield, Gen. Supt.; Charles Harlowe, Jr., Excav. Supt.

Schedules Nos. 2, 2A, 2B, 3, 3A, 3B, 7, and 7A, Barrett & Hilp and Macco Corp.; H. W. McKinley, Supt.

Schedules Nos. 4, 4A, 5, and 5A, Jahn & Bressi Construction Co., Joseph Muscolo, Gen. Supt.; Dominick Bressi, Asst. Gen. Supt.

Schedules Nos. 6, 8, 8A, and 8B, Clyde W. Wood and M. J. Bevanda, A. F. Weesner, Gen. Supt.

Schedules Nos. 9, 9A, 9B, and 9C, The Utah Construction Co.; Gen Arp, Gen. Supt.

Schedules Nos. 12 and 12A, Three Companies, Inc., John Will, Supt.

Schedules Nos. 14, 15, and 16, Thompson - Starrett Co., Inc., Rodney Smith, Gen. Supt.; William Hayes, Excav. Supt.

Schedules Nos. 18, 19, and 20, J. F. Shea Co., Inc., J. G. Shea, Gen. Mgr.; H. F. Rennebohm, Supt.

(Distribution Pipe Line)

Schedules No. 4P and 5P, American Concrete & Steel Pipe Co., Wm. A. Whiting, Gen. Supt.; D. H. Rankin, Plant Supt. and Const. Supt.

Schedules 6P and 7P, J. F. Shea Co., Inc., J. G. Shea, Gen. Mgr.; Ed. H. Shea, Gen. Supt.

Schedule 10P, United Concrete Pipe Corp., John Huber, Plant Supt.; Roy Richards, Const. Supt.

Schedules 2B and 2S, Western Pipe & Steel Co., L. L. White, Supt.

Schedules 8C, 9C, 12C, Basich Bros.; P. N. Hartzell, Supt.

(Dams)

Cajalco dam, The Griffith Co., Harry Davis, Gen. Supt.

Parker Dam, J. F. Shea Co., Frank Crowe, Gen. Supt., E. A. Moritz, Constr. Eng., U.S.B.R.

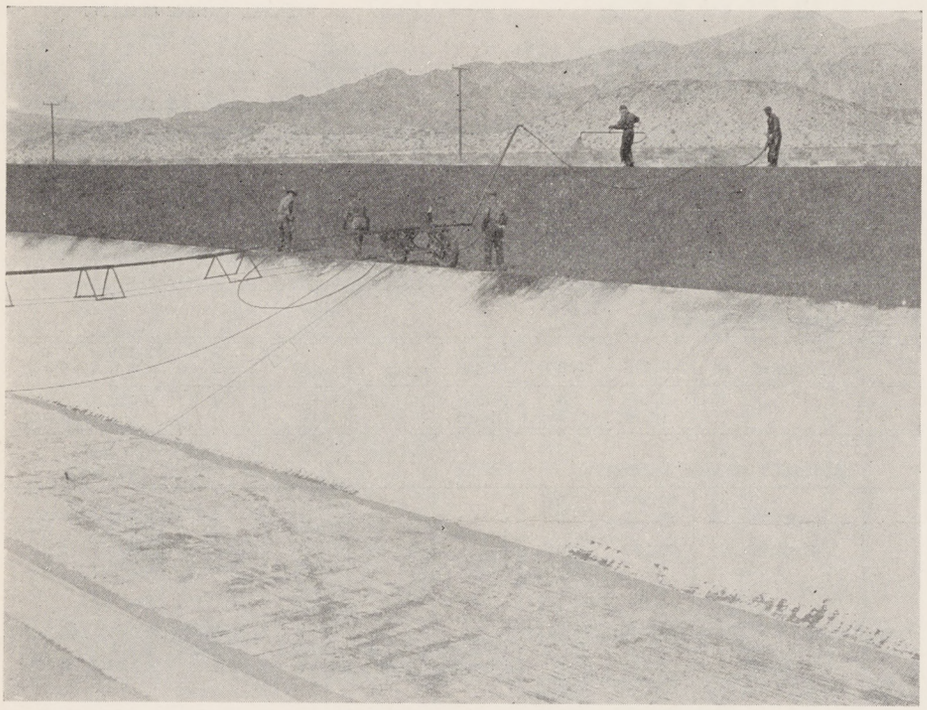
(Pumping Plants)

Intake and Gene, Winston Bros. and Crowell, R. A. Crowell, Supt.; F. T. Hillman Engr.

Iron Mountain, Wood and Bevanda; Grant Miner, Supt.

Eagle Mountain, L. E. Dixon Co.; F. H. Strohecker, Supt.

Hayfield, Dixon and Case; Crawford Strohacker, Supt.



Utah Construction Co. crew spraying road oil on canal berm in Schedule 9 to prevent wind erosion.

First 200 cfs Pump Due on June 14

With other types of construction on the main aqueduct completed, or closed down for the summer lay-off, District work on the Iron Mountain pumping plant is now getting into full swing. Present plans call for the installation of equipment in all of the five aqueduct plants to be handled as a force account job.

The first of the 200 cubic second foot capacity centrifugal pumps is expected to arrive at Rice about June 14. Intended for the Iron Mountain plant, this pump is manufactured by The Allis-Chalmers Co. of Milwaukee. Because of its size and weight, the pump will not be completely assembled when it arrives at Rice. Final assembly and installation will be made at the pumping plant under the direction of B. H. Martin, Construction Superintendent, and General Foreman V. T. Davis who has recently been transferred to the plant from Division 4.

The District has purchased a special low-bed trailer of 50 tons capacity to haul this and other pumping plant equipment from the railheads to the plants.

Present delivery schedules call for the electric motors to follow the pumps by 60 days. The motors for the Iron Mountain plant are rated at 4,300 horsepower, and are also being manufactured by the Allis-Chalmers Company.

56 Miles Cable for Aqueduct Pumping Plants

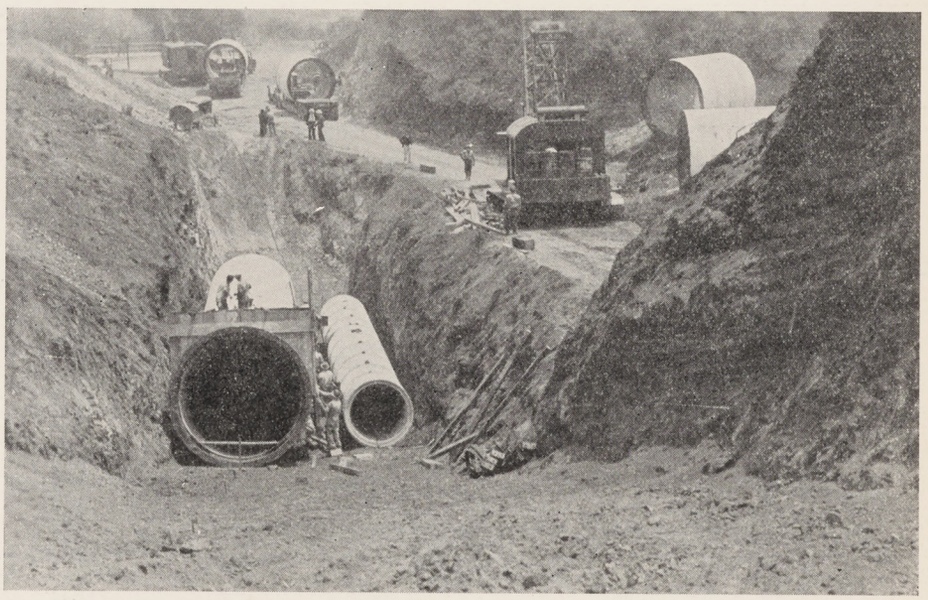
The Board of Directors at its regular meeting on June 4 awarded contracts for 56 miles of insulated wire cable to be used in aqueduct pumping plants. More than 10 miles of this cable will be used in each pumping plant in connection with the installation of the motors which will drive the 200 cubic second foot capacity pumps.

Divided into three schedules the cable will be supplied under Specifications No. 205. The Circle Wire and Cable Corporation of Brooklyn, N. Y., was awarded a contract for Schedules 1 and 2 on the basis of its low bid of $78,495. These schedules provide for 288,950 feet of the cable, which is 600-volt, rubber-insulated, both braid and lead covered, and of miscellaneous sizes and lengths.

Schedule No. 3 provides for furnishing 6,720 feet of special multiconductor lead-covered, 600-volt control cable. John A. Roeblings Sons Co., Los Angeles, was awarded a contract for supplying this item on the basis of its low bid of $1,232.

During the same meeting of the Board awards were made to the Grinnell Co. of the Pacific, Los Angeles, for furnishing 6,150 feet of 18-in. black steel pipe for $26,151, and to the Pressed Steel Car Company, Pittsburgh, Pa., for supplying 50 muck cars for $22,625.

The steel pipe will be used as an unwatering line in the Lawrence adit of the San Jacinto tunnel. The muck cars, which have a capacity of 4¼ cubic yards will be used in the Potrero and Cabazon headings of the same tunnel.



Precast concrete pipe line on the Arroyo Seco crossing of the distribution system. Taken from the east portal of San Rafael tunnel No. 1, the picture shows the 9-ft. 8-in. pressure line, and to its right the 5-ft. discharge line which leads from an automatic spillway at the tunnel portal back to the Arroyo Seco.

TUNNELS

May 1 to May 31, 1937

TUNNEL EXCAVATION (MILES)

	Completed	Remaining
Aqueduct	87.73	4.38
Distribution	16.20	0
Total	103.93	4.38

*TUNNEL LINING (MILES)

	Completed	Remaining
Aqueduct	83.16	8.95
Distribution	9.89	6.26
Total	93.05	15.21

*Arch considered to equal 0.9 completed section.

TUNNEL PROGRESS

CONTRACTOR	TUNNEL	LENGTH IN FEET	EXCAVATION IN FEET: NUMBER OF SHIFTS	AVERAGE PER SHIFT	THIS PERIOD	TOTAL TO DATE	REMAINING	LINING IN FEET: ARCH OR INVERT	NUMBER OF SHIFTS	AVERAGE PER SHIFT	THIS PERIOD	TOTAL TO DATE	REMAINING
AQUEDUCT—CONTRACT													
BRODERICK & GORDON	EAST EAGLE MT.	9,440		Completed		9,440	0	Arch			0	9,440	0
								Invert			0	0	9,440
	TOTALS Ft.	9,440				9,440	0	Arch			0	9,440	0
	Miles	(1.79)				(1.79)	0	Invert			0	0	9,440
AQUEDUCT—FORCE ACCOUNT													
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	EAST COACHELLA	(96,605)				(96,605)	0						
	East Portion	28,512		Completed		28,512	0	Arch			0	28,512	0
								Invert			0	28,512	0
	West Portion	68,093		Completed		68,093	0	Arch			0	68,093	0
								Invert	13	389.6	5,065	68,093	0
	SAN JACINTO	(68,849)	(186)	(4.1)	(754)	(45,728)	(23,121)				(1,861)	22,544	(46,305)
	Cabazon Shaft to East Portal	8,880		Completed		8,880	0	Arch	58	35.7	2,068	8,420	460
								Invert	0	0	0	130	8,750
	Cabazon to Lawrence	26,817	93	3.9	363	14,229	12,588						
	Cabazon Pioneer	18,119	93	6.3	590	5,770	12,349						
	Lawrence Adit	5,651	93	4.7	434	4,154	1,497						
	Potrero Pioneer	15,195	93	1.2	112	5,189	10,006						
	Potrero to Lawrence	17,670	93	4.2	391	7,137	10,533						
	Potrero Shaft to West Portal	15,482		Completed		15,482	0	Arch	0	0	0	14,953	529
								Invert	0	0	0	14,953	529
	TOTALS Ft.	165,454	186	4.1	754	142,333	23,121	Arch	58	389.6	2,068	119,978	45,476
	Miles	(31.34)			(1.4)	(26.96)	(4.38)	Invert	13	35.7	5,065	111,688	53,766
DISTRIBUTION—CONTRACT													
GRIFFITH CO.	CAJALCO OUTLET	2,368		Completed		2,368	0		46	9.9	455	645	1,703
WEST CONSTRUCTION CO.	MONROVIA NO. 1 (FromW.P.)	7,868		Completed		7,868	0				Completed	7,796	0
	MONROVIA NO. 2 (FromJct.1)	940		Completed		940	0				Completed	856	0
	MONROVIA NO. 3	(32,105)		Completed		(32,105)	(0)						
	East from Adit	11,340				11,340	0	Full Sec.			0	11,284	(20,286)
	West from Adit }					5,913 }		Invert*	39	67.3	2,622	2,622	18,188
	From West Portal }	20,765				14,851 }	0						
DIXON, BENT BROS. & JOHNSON	MONROVIA NO. 4 (FromW.P.)	8,133		Completed		8,133	0		75	15.3	1,144	1,174	6,959
	SAN RAFAEL No.1 (FromW.P.)	4,047		Completed		4,047	0				Completed	4,028	0
	SAN RAFAEL No. 2 (FromE.P.)	5,669		Completed		5,669	0		66	16.2	1,067	1,518	4,143
	TOTALS Ft.	61,130				61,130	0	Full	226	14.1	3,190	27,825	33,091
	Miles	11.58				11.58	0	Section			(0.60)	(5.27)	(6.26)

*Invert considered to equal 0.2 completed section

COMPLETED TUNNELS

	CONTRACTOR	TUNNEL	Length in Miles	Work Started	Work Completed
AQUEDUCT	MORRISON-KNUDSEN CO.	Mecca Pass, No. 1, 2 & 3	1.13	7-17-33	2-10-35
	WEST CONSTRUCTION CO.	Whitewater Nos. 1 & 2	1.94	7-18-33	4-15-35
	SHOFNER & GORDON	Hayfield No. 2	1.03	7-8-33	7-27-35
	HAMILTON & GLEASON	Bernasconi	1.18	4-19-33	11-21-35
	J. F. SHEA CO., INC.	Cottonwood	3.81	6-14-33	12-29-35
	HUNKIN-CONKEY CON. CO.	Hayfield No. 1	1.84	10-21-33	1-9-36
	DIXON & BENT BROS.	W. Eagle—West Portion	2.02	9-8-33	3-12-36
	DRAVO CONTRACTING CO.	Valverde	7.20	6-7-33	10-18-36
	WALSH CONSTRUCTION CO.	Colorado River	1.04	3-2-34	1-29-36
	WALSH CONSTRUCTION CO.	Copper Basin Nos. 1 & 2	2.32	10-4-33	2-20-36
	WALSH CONSTRUCTION CO.	Whipple Mountain	6.11	8-25-33	1-26-37
	UTAH CONSTRUCTION CO.	IronMt.—West Portion	3.07	5-15-33	10-23-36
	WINSTON BROS. CO.	Iron Mt.—East Portion	4.48	8-9-33	10-30-36
	METRO. WATER DIST.	1000 Palms No. 1	3.04	1-25-33	1-7-37
	" " "	1000Palms No. 2	0.73	2-24-33	12-19-35
	" " "	Wide Canyon No. 1	2.71	3-31-33	2-11-37
	" " "	Wide Canyon No. 2	0.16	3-24-33	2-12-37
	" " "	Seven Palms	3.17	4-27-33	2-2-37
	" " "	Long Canyon	2.90	3-6-34	12-31-36
	" " "	Blind Canyon	1.29	3-22-34	12-3-36
	" " "	Morongo No. 1	1.08	4-21-34	1-20-37
	" " "	Morongo No. 2	0.36	12-29-34	1-5-37
	BRODERICK & GORDON	West Eagle Mt.—E. Portion	3.00	2-8-34	5-6-37
	WINSTON BROS.	Coxcomb	3.37	9-15-33	4-26-37
		TOTALS	58.98		
DISTRIBUTION	J. F. SHEA CO., INC.	Sierra Madre	1.27	9-1-35	10-31-36
	DIXON, BENT BROS. & JOHNSON	Pasadena Extension	1.05	10-5-35	11-24-36
	DIXON, BENT BROS. & JOHNSON	Pasadena	2.30	2-11-35	4-29-37
		TOTALS	4.62		

ON PROGRESS

CANAL, CONDUIT, SIPHON & PIPE LINES

May 16 to May 29, 1937

CANAL, CONDUIT AND SIPHON (MILES)

	Completed	Remaining
Excavation	137.08	8.58
Concrete	135.20	9.41
Back Fill	68.37	13.51

DISTRIBUTION PIPE LINE (MILES)

	Completed	Remaining
Excavation	34.33	11.98
Concrete	33.19	13.12
Back Fill	30.73	15.58

AQUE DUCT

SCHED. NO.	CONTRACTOR	FEATURES	Length In Feet	EXCAVATION—Feet			CONCRETE—Feet			BACKFILL—Feet		
				Period	To Date	Remain'g	Period	To Date	Remain'g	Period	To Date	Remain'g
1	AQUEDUCT CONSTR. CO.	Conduit and Siphons	22,025	0	22,025	0	0	22,025	0	0	22,025	0
2	BARRETT & HILP AND MACCO CORP.	Conduit and Siphons	30,569	0	30,569	0	0	30,569	0	0	30,569	0
3		Canal and Siphons	40,499	0	40,499	0	0	40,499	0	0	12,345	0
6	WOOD AND BEVANDA	Siphon	15,521	0	15,521	0	0	15,521	0	0	15,345	176
7	BARRETT & HILP & MACCO CORP.	Canal and Conduit	27,707	0	27,707	0	0	27,707	0	0	12,170	0
8	WOOD AND BEVANDA	Canal and Siphons	49,339	0	49,339	0	0	49,339	0	0	7,090	800
9	UTAH CONSTRUCTION CO.	Canal, Conduit and Siphons	47,363	0	47,363	0	0	47,363	0	0	6,199	0
10	AQUEDUCT CONSTR. CO.	Canal and Siphons	44,505	0	44,505	0	0	44,505	0	0	3,594	1,256
11		Canal, Conduit and Siphons	44,003	0	44,003	0	0	44,003	0	0	10,068	255
12	THREE COMPANIES, INC.	Conduit and Siphons	32,977	0	32,977	0	394	32,253	724	1,958	27,310	5,667
13	AQUEDUCT CONSTR. CO.	Canal, Conduit and Siphons	31,965	0	31,965	0	0	31,965	0	0	2,610	1,055
14	THOMPSON-STARRETT CO.	Conduit and Siphons	32,366	0	32,366	0	0	32,366	0	0	32,366	0
15		Conduit and Siphons	35,849	0	35,849	0	372	35,816	33	3,710	30,662	5,187
16		Conduit and Siphons	19,359	0	0	19,359	0	0	19,359	0	0	19,359
17	M. W. D.—FORCE ACCT.	Conduit and Siphons	21,952	0	21,952	0	0	21,952	0	0	21,827	125
18	J. F. SHEA CO., INC.	Conduit and Siphons	27,537	0	27,537	0	0	27,537	0	0	27,327	210
19	J. F. SHEA CO., INC.	Conduit and Siphons	37,364	0	11,443	25,921	2,455	8,546	28,818	750	1,200	36,164
20		Siphons	18,618	0	18,618	0	0	18,618	0	0	18,618	0
20 A & B	M. W. D.—FORCE ACCT.	Siphons	735	0	705	30	0	0	735	0	0	735
3	WINSTON BROS. CO. & WILLIAM C. CROWELL	Siphon (Gene Inlet)	1,877	0	1,877	0	0	1,860	17	0	1,478	320
4		Siphon (Copper Basin)	450	0	450	0	0	450	0	0	0	0
	TOTALS		582,580	0	537,270	45,310	3,221	532,894	49,686	6,418	282,803	71,309

DISTRIBUTION PIPE LINES

1	AMER. CONC. & STEEL PIPE CO.	Precast Concrete Pipe	12,277	0	0	12,277	0	0	12,277	0	0	12,277
2	WESTERN PIPE & STL. CO.	Welded Steel Pipe	54,530	175	41,926	12,604	3,001	37,285	17,245	0	28,432	26,098
3	AMER. CONC. & STEEL PIPE CO.	Precast Concrete Pipe	20,124	2,900	12,600	7,524	2,282	12,068	8,056	2,750	11,755	8,369
4			25,867	0	25,867	0	0	25,867	0	0	25,867	0
5			24,889	0	24,889	0	0	24,889	0	0	24,889	0
6	J. F. SHEA CO., Inc.	Precast Concrete Pipe	27,294	0	27,294	0	0	27,294	0	0	25,838	1,456
7			30,044	1,760	10,020	20,024	1,667	9,824	20,220	1,330	8,430	21,614
9	UNITED CONC. PIPE CORP.	Precast Concrete Pipe	8,697	0	0	8,697	0	0	8,697	0	0	8,697
10			10,517	0	10,517	0	0	10,517	0	0	10,450	67
11			4,105	1,003	3,588	517	553	2,961	1,144	370	2,050	2,055
SC-9C-12C	BASICH BROTHERS	Cast-in-Place Conc. Pipe	1,656	0	0	1,656	0	0	1,656	0	0	1,656
	TOTALS		220,000	5,838	156,701	63,299	7,503	150,705	69,295	4,450	137,711	82,289

Miscellaneous Construction

May 16 to May 29, 1937

AQUEDUCT PUMPING PLANTS AND APPURTENANT WORKS

CONTRACTOR	FEATURES	EXCAVATION—Cu. Yds.				CONCRETE—Cu. Yds.				STEEL—Tons			
		Est. Quan.	Period	To Date	%	Est. Quan.	Period	To Date	%	Est. Quan.	Period	To Date	%
WINSTON BROS. CO. &	Intake Plant	110,142	0	107,795	98	22,729	0	19,156	84	1,695	70.7	1157.6	68
WILLIAM C. CROWELL	Gene Plant	87,256	0	87,239	100	14,770	0	14,257	96	2,115	0	1729.9	82
WOOD AND BEVANDA	Iron Mt. Plant	357,217	17,382	356,000	99	22,875	1,206	21,513	94	1,755	202.6	1566.7	89
L. E. DIXON CO.	Eagle Plant	271,560	1,030	238,729	88	25,091	1,866	17,474	70	2,200	86.7	921.9	42
L. E. Dixon & Case Const. Co.	Hayfield Plant	352,471	0	343,383	97	30,143	808	6,622	22	2,695	67.7	638.2	24
	TOTALS		18,412	1,133,146			3,880	79,022			427.7	6014.3	

PARKER RESERVOIR—SIX COMPANIES, INC.

FEATURES	Est. Quan.	Period	To Date	Percent
Diversion Tunnels—Excav.	3,463 Ft.	0	3,463	100
Diversion Tunnels—Concrete	3,363 Ft.	0	3,363	100
Dam, Forebay, etc., Excav.	2,182,700 C.Y.	64,350	1,880,022	86
Concrete	279,000 C.Y.	400	1,955	0.7

CAJALCO RESERVOIR—GRIFFITH COMPANY

FEATURES	Est. Quan.	Period	To Date	Percent
Diversion Tunnel	2,000 Ft.	0	2,000	100
Dam & Dike Excavation	651,000 C.Y.	23,100	575,102	88
Dike Fill	4,182,000 C.Y.	0	3,855,500	92
Dam Fill	3,410,000 C.Y.	162,400	1,515,300	44

BOULDER TRANSMISSION LINE—FRITZ ZIEBARTH

FEATURES	Length-Line Mi.	Period	To Date	Percent
Footings Constructed	237.0	0	237	100
Towers Erected	237.0	0	237	100
Wire Strung	237.0	4	221	93

COMPLETED—DISTRIBUTION PIPE LINES

CONTRACTOR	Schedules	Lgth. in Mi.	Work Started	Work Completed
UNITED CONC. PIPE CORP.	Schedule No. 8	4.65	2-21-36	3-20-37

COMPLETED FEATURES—AQUEDUCT CANAL, CONDUIT AND SIPHON

CONTRACTOR	FEATURE AND NAME OR SCHEDULE	Length in Miles	Work Started	Work Completed
UNITED CONC.PIPE CORP.	LITTLE MORONGO SIPHON	0.13	2-27-34	8-20-34
M.W.D.—FORCE ACCT.	FAN HILL COND. & SIPHON	0.32	10.21-33	11-19-34
MORRISON-KNUDSON CO.	BIG MORONGO & SAN ANDREAS SIPHONS	1.86	2-12-35	9-16-36
GRIFFITH COMPANY	Sch. No. 20-C, 21,22,23, 23A	12.79	1-5-35	10-13-36
JAHN & BRESSI Const. Co.	Sch. No. 5, CANAL & SIPHON	10.15	12-18-34	11-17-36
JAHN & BRESSI Const. Co.	Sch. No. 4, CANAL & SIPHON	10.08	6-6-35	3-18-37
	TOTALS	35.33		

Radio Pipe Finder Used In Location Of Subsurface Structures

Editor's Note: Many have been the questions put to harried survey crews on the distribution system who have been using the District's underground pipe detector. The sight of two solemn faced men carrying strange boxes back and forth across the city streets has caused much lifting of eyebrows among the citizenry. In order to save time in answering the never varying question, "What's it?", the operators have christened it "The Doodle-bug."

Space does not permit the listing of all the speculations offered by bystanders as to the purpose of "The Doodle-bug," but chief among these has been, "Just a couple of nuts lookin' for gold."

In defense of much maligned operators of the said "bug," Newt Smith, Lee Striker, Dave Wells,, and Jack Russell—George Baker, Engineer in charge of location surveys on the distributing syster, has complied this essential data as to the true purpose of the instrument.

A large part of the distribution system will follow city streets which are occupied by pipe lines and conduits for different utilities. In order to select the most economical routes for these distribution lines an accurate knowledge of the location of subsurface structures already built is desirable.

D. H. "Dave" Wells operating the transmitter of the "doodle-bug" used in locating substructures on the Distribution Division.

To aid in locating and platting continuous buried metallic lines, the District bought one of the latest types of electrical apparatus used by geophysical engineers for making underground explorations. This apparatus is of the inductive type consisting essentially of a loop of many turns of wire carrying an alternating current and operated in conjunction with a radio type direction finder. In two pieces, the equipment consists of a transmitter and a receiver.

The transmitter is modulated, working on a frequency of 175 kc. modulated with an audio-frequency of 1,000 cycles. The receiver consists of a two-stage impedance coupled radio-frequency amplification detector and two stages of radio amplification. The phones can be connected to either stage by means of a selector switch.

In locating an underground pipe line, the operators place themselves about 40 feet apart, parallel to the assumed direction of the line. They then move toward the line, keeping abreast, until the signal heard in the receiver's ear-phones reaches a maximum volume when the instruments are directly over the pipe line. By placing the transmitter over this spot, it is then possible to move the receiver along the street and trace the direction of the underground line in accordance with the volume of the signal received.

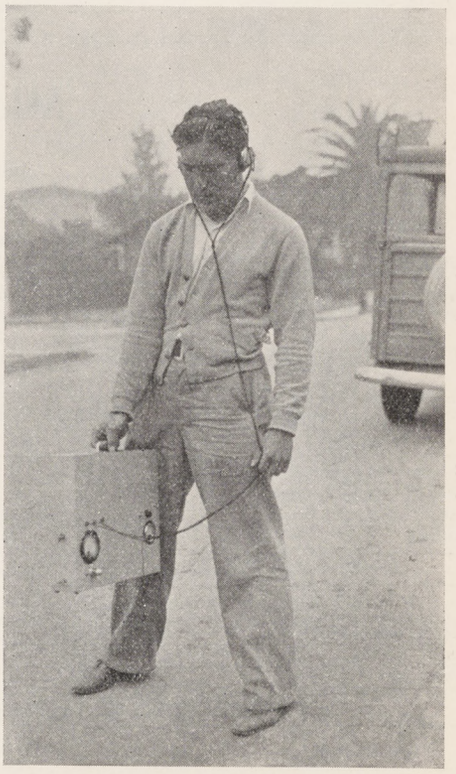
For the past three months this instrument has been in use, and is proving very satisfactory. Any metallic conduit is readily located. Water and gas mains, oil lines, power conduits, and telephone cables have been located and platted.

The work is generally expedited if plans of the utilities are available, but these are not absolutely necessary. Some very intricate deviations from the utility plans have been located with the apparatus and verified by actually digging up the pipes. In one instance nine oil lines, from four to ten inches in diameter, and lying parallel with one and two foot intervals, were individually verified.

The radio pipe finder is found to be readily adaptable to reconnaissance surveys. In order to see if a certain street is "passable" it is examined for longitudinal pipes only. It is possible in this manner to investigate four miles in one day. For complicated work, an hour may be required at one street intersection. Local electrical disturbances, static, high voltage power lines and nearby broadcasting stations cause some interference. (Ed. note: This job is expected to be very popular next fall when the World Series is on the air.)

With subsurface structures located by means of this device and platted on plane table sheets, a location for the larger distribution mains is easily and economically made.

Thus far the apparatus has had its principal use in the location of the Eagle Rock-Palos Verdes cross-feeder. At the present time the first 18 miles of this cross-feeder have been designed, and it is expected that bids will be called for in the near future for the construction work. Design and construction work on the distributing system is under the direction of Distribution Engineer R. B. Diemer.



Jack Russell listens in for the buzz that will tell him he is over a buried pipe.

OUTSIDE AREAS SEEK DISTRICT MEMBERSHIP

(*Continued from Page 2.*)

Property owners in the Puente Valley are now circulating a petition requesting the Board of Supervisors of Los Angeles County to call an election in that area for the purpose of forming a local water district, which in turn may be annexed to the Metropolitan Water District. This area includes approximately 50,000 acres, and extends from Pomona to the Orange County line.

NEWS FROM FIELD AND OFFICE

Ring out wild bells, etc., etc.—the month of June is the month of bridegrooms on the aqueduct. In fact, even the month of May seems to have its marital attractions for aqueduckers, to-wit:

Miss Edith Hill of Merced and John Bjork were married at Yuma on May 24. Johnny Bjork is a machineman in the Potrero heading of the San Jacinto tunnel.

* * *

Miss Mary Jordan and John G. Farmer, Jr., were married in Yuma on Saturday, May 29. Mrs. Farmer is a popular young socialite of Banning. John Farmer has been with the District since February, 1933, when he was first employed as a rodman. At present he is a foreman in the Lawrence adit of the San Jacinto tunnel.

* * *

Another Yuma marriage on Saturday, May 29, was that of Miss Eva Potvin of Los Angeles, and Edward E. Stewart of the District's Banning office. Ed Stewart is an old-timer with the M.W.D. having been in the L. A. Mails and Files section for a number of years prior to his transfer to Banning. At present he is in the accounting section of the field headquarters. The couple spent their honeymoon in San Francisco.

* * *

Ken Davis who has been one of the fixtures of the Los Angeles office since July, 1930, is moving out on the desert on June 15 to take over new duties in the District's warehouse at the Iron Mountain pumping plant. Ken has been in the Mails and Files section of the L. A. office since that organization came into being.

* * *

As noted elsewhere in the NEWS, V. T. Davis, formerly Superintendent of Construction on Division 4, has been transferred to the Iron Mountain pumping plant. Vern Davis has been a most reliable and consistent correspondent for the AQUEDUCT NEWS, and it is sincerely hoped that he will not lose his "nose for news" on the new job.

* * *

W. B. "Bill" Juckett, Junior Engineer at Berdoo for the past two years, left on June 1 for a two months' vacation in Europe. (Who said there wasn't any gold in them thar hills?) Bill expects to visit Italy, Switzerland, Germany, France, and England.

Aqueduct Temperatures
May 16 to May 31, 1937

	Max.	*Min.*
Div. 1	**109**	**61**
Div. 2	**106**	**62**
Div. 3	**104**	**62**
Div. 4	**100**	**58**
Divs. 5 and 6	**93**	**46**

Two Australian engineers made an inspection tour of the aqueduct during the week of May 29. They were Charles H. Kernot, Construction Engineer, and J. F. Douglas, Assistant Civil Engineer, of the State Electricity Commission of Victoria, with headquarters in Melbourne. Both engineers commented on the size of the construction equipment used in building the aqueduct.

* * *

George Russell Benson, of the Cajalco engineers, is the proud and still jittery father of a set of twins. Two girls made their debut into the Benson family at the Riverside Community Hospital on Saturday, June 5. At last reporting, George was still too excited to announce the vital statistics, such as names, weights, etc.

Thaddeus Merriman, formerly Chief Engineer and now Consulting Engineer for the Board of Water Supply of New York City, made an inspection tour of the aqueduct during the week ending May 29. Mr. Merriman was Chairman of the Engineering Board of Review who prepared the final report on the location of the Colorado River Aqueduct. This was his first trip over the project since construction was started.

* * *

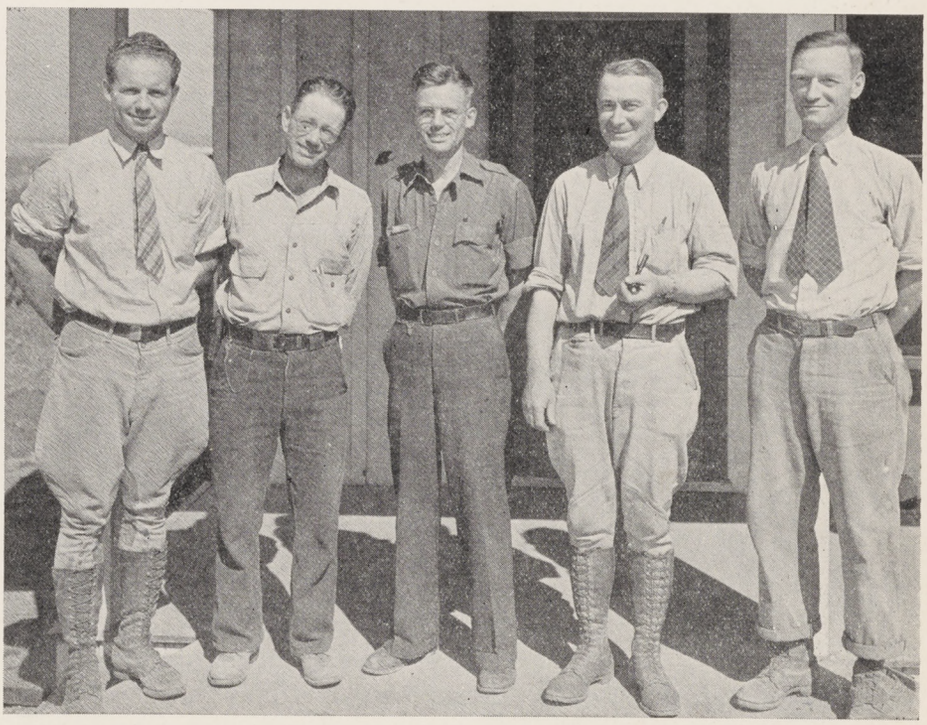
Note to Banning Chamber of Commerce: It looks as if there might be an opportunity for some enterprising person to make some money marrying people in Banning. The Metropolitan Water District still has a number of "eligibles" on its roster.

* * *

Director Otto J. Emme, Los Angeles representative on the District's Board of Directors, was designated as the official representative of the Mayor of Los Angeles at San Francisco's Golden Gate Bridge Fiesta.

* * *

The classification of "Rigger" at a per diem rate of $7.70 has been established by the Metropolitan Water District.



The Cajalco Quints. These five members of Resident Engineer Dick Ward's staff at the reservoir job are: Nick Crossely, Morris Hayes, Wes Irwin, Bob Stoddard, and Paul "Gemp" Gemperle.

Aqueduct Notes from Here and There

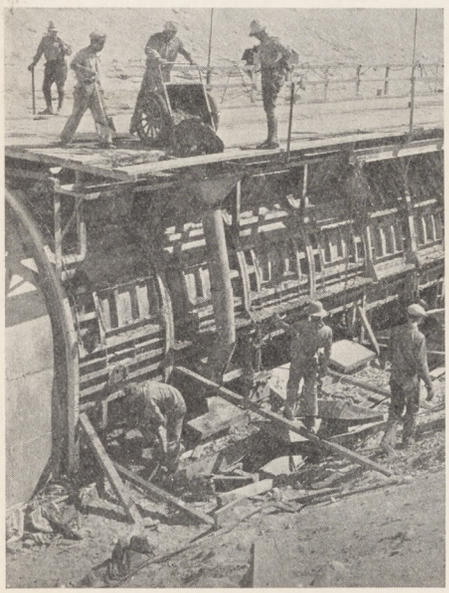
Of interest to aqueduckers are the following items that pertain to the big job:

The Santa Monica Outlook, in an editorial in its May 24 issue, states, "The recent report of the Santa Monica Municipal Water Department that 20,000,000 more gallons of water were consumed in April, of this year, than in the same month of 1936, and the fact that the Charnock wells, from which the city's supply is being pumped, are steadily lowering, gives additional cause for gratification that we belong to the Metropolitan Water District, and that its construction is well ahead of schedule."

Those streets of Indio which are not paved are getting a surface covering of fine crushed rock, the material coming from the muck pile at Berdoo camp in the Coachellas.

The placing of the concrete paving slab on the upstream side of the Cajalco dike was completed on May 29.

U. S. Bureau of Reclamation officials state that storage in Lake Mead, created on the Colorado River by Boulder Dam, has reached 13,000,000 acre feet, providing a head of 428 feet for the power drop. This is eight feet more than is required for continuous production of firm power.

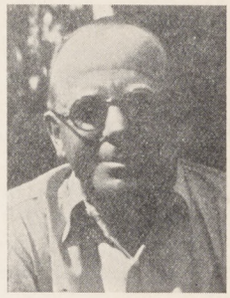


Aqueduct Construction Co. crews placing the last concrete in the Pinto Siphon in Division 3.

Who's Who On the Aqueduct

T. P. Polich

D. B. Gumensky



D. H. Rankin

T. P. POLICH
Vice-President, United Concrete Pipe Corporation

Born March 22, 1888, near Dubrovnik, Serbia, on the Adriatic coast . . . Came to the United States in June, 1905 . . . Landed in New York, and came directly to Los Angeles . . . First job was as a laborer with the Los Angeles Gas and Electric Company . . . 1907-1914 with Arthur Bent Construction Co., as a pipe maker (hand-made precast concrete pipe) . . . 1914-1917, General Foreman for G. R. McIntyre Construction Co. in Ventura . . . 1917-1918, Pipe Foreman in Whittier pipe manufacturing plant . . . 1918-1919, Superintendent, Valley Concrete Pipe Co., San Fernando, making precast concrete pipe . . . 1919-1921, started in contracting business for himself in Merced, Polich Construction Company . . . In 1921 consolidated with other companies to form the United Concrete Pipe Corporation . . . His company worked with the American Concrete and Steel Pipe Co. on the construction of the Little Morongo siphon on the main aqueduct . . . At the present time his company has contracts for distribution precast concrete pipe schedules 8, 9, 10 and 11 . . . Is married and has one son .

D. B. GUMENSKY
Engineer, Design Section, Metropolitan Water District

Born October 26, 1898, in Ufa, Russia . . . Attended the Imperial Institute of Ways and Communications in St. Petersburg until November, 1916 . . . Joined the Russian Army in 1916, and was commissioned a Lieutenant in the Air Corps as a pilot . . . Held a commission in the White Russian army during the Russian Revolution, 1917-1921 . . . 1921 came from Shanghai, China, to San Francisco . . . 1921-1922 employed as a laborer, carpenter's apprentice and carpenter, by Meyer Brothers Construction Company of San Francisco . . . 1922-1925 attended the University of California in Berkeley. Coached at S.S.S. Training School and did drafting work during the same period . . . Graduated from University of California with B.S. in Civil Engineering in 1925 . . . 1925-1928 with Fred H. Tibbets. consulting engineer, San Francisco, as draftsman, instrumentman, hydraulic designer, assistant resident construction engineer, and resident engineer on development of Nevada Irrigation District . . . 1928, with Western Pacific R. R. Co., in San Francisco . . . 1929 to date on Colorado River Aqueduct, first with Department of Water and Power, City of Los Angeles, and then with M.W.D. on design of hydraulic structures . . . His nickname is "Ben." . . . Hobby is mathematics.

D. H. RANKIN
Superintendent, American Concrete and Steel Pipe Co., Distribution Schedules 1P, 3P, 4P and 5P

Born October 13, 1896, in Shelby, Michigan . . . Graduated from the University of Michigan in 1919 with the degree of B.S. in Civil Engineering . . . During time he was in college, he worked in various capacities in steel mills . . . 1919-1924, Foreman and Superintendent on steel mill, and coke oven construction in Pennsylvania, Ohio, and Ontario, Canada . . . 1924-1932, employed as construction engineer by the L. E. Meyers Company of Chicago . . . Most of this work was in connection with electric power plant and transmission line construction for the Insull Utilities in the mid-west . . . Also for the Edison Company of Cuba . . . 1933 to date has been with the American Concrete and Steel Pipe Company . . . Was superintendent for that contractor on construction of Hetch Hetchy Water Supply System for City of San Francisco, and Tacoma, Wash., City Water Supply . . . Was on Little Morongo siphon on main aqueduct, M.W.D., and now has charge of precast concrete pipe fabrication and placing on distribution schedules 1P, 3P, 4P and 5P . . . Is married . . Known on the job as "Don."